

VIA OK

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Form 3160-3
(August 2007)

MAY 08 2012

FORM APPROVED
OMB No 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Farmington Field Office
Bureau of Land Management

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM042428 & NMNM086497	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Robert L Bayless, Producer LLC		7. If Unit or CA Agreement, Name and No.	
3a. Address P.O. BOX 168 FARMINGTON, NM 87499		8. Lease Name and Well No. HORSESHOE GALLUP 19-8H	
3b. Phone No. (include area code) 505 326 2659		9. API Well No. NOT ASSIGNED 30-045-35376	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1500' FNL & 555' FEL 400 FWL At proposed prod. zone 1720' FNL & 555' FEL		10. Field and Pool, or Exploratory HORSESHOE GALLUP	
14. Distance in miles and direction from nearest town or post office* 3.5 MILES NE OF WATERFLOW, NM		11. Sec., T. R. M. or Blk. and Survey or Area H SEC. 19, T30N, R15W	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 555 FT - LEASE LINE	16. No. of acres in lease 160	17. Spacing Unit dedicated to this well 160	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1536 FT-BLACK DIAMOND COM FED 1	19. Proposed Depth 8324' (MD), 4120' (TVD) **HORIZONTAL WELL**	20. BLM/BIA Bond No. on file 40540023024BCA	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 5379 FT G.L.	22. Approximate date work will start* 07/01/2012	23. Estimated duration 30 DAYS	

24. Attachments

RCVD JUL 5 '12

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must be attached to this form:

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

OIL CONS. DIV.

DIST. 3

25. Signature 	Name (Printed/Typed) JOHN D THOMAS	Date 05/07/2012
Title OPERATIONS ENGINEER		
Approved by (Signature) 	Name (Printed/Typed)	Date 7/3/12
Title AFM	Office FFO	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

A COMPLETE C-144 MUST BE SUBMITTED TO AND APPROVED BY THE NMOCDFOR: A PIT, CLOSED LOOP SYSTEM, BELOW GRADE TANK, OR PROPOSED ALTERNATIVE METHOD, PURSUANT TO NMOCDF PART 19.15.17, PRIOR TO THE USE OR CONSTRUCTION OF THE ABOVE APPLICATIONS.

Hold C104
for Directional Survey
and "As Drilled" plat

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

JUL 12 2012 ea

Hold C104
for Directional Survey
and "As Drilled" plat

RECEIVED

MAY 03 2012

District I

1625 N. Trench Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-6120

District II

811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-0720

District III

1000 Rio Hondo Rd., Aztec, NM 87410
Phone: (505) 334-6176 Fax: (505) 334-6170

District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

Farmington Field Office

State of New Mexico Bureau of Land Management

Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.

Santa Fe, NM 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-045-35376		2 Pool Code 32870		3 Pool Name HORSESHOE GALLUP	
4 Property Code 39317		5 Property Name HORSESHOE GALLUP 19			6 Well Number 8H
7 QRID No. 150182		8 Operator Name ROBERT L. BAYLESS, PRODUCER LLC			9 Elevation 5379

10 Surface Location

1/4 or Lot No	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West Line	County
H	19	30 N	15 W		1500	North	555	East	San Juan

11 Bottom Hole Location If Different From Surface

1/4 or Lot No	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West Line	County
7E	19	30 N	15 W	2	1720	North	400	West	San Juan

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No
160.51/NI			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

16 (20.07) N 89°40' W 39.70 Ch. (19.87) 39.94 Ch. N 89°48' W Lot 1 Bottom Hole 1720' FNL & 400' FWL Lot 2 N 89°43'52" W, 4323.8' Sec. 19 Lot 3 Lot 4 (20.44) N 89°56' W (19.91) 80.16 Ch. Lat. 36.80275° N Long. 108.45122° W South, 220' Bottom Pilot Hole 1720' FNL & 557' FEL 1500' 39.81 Ch. 39.88 Ch. North				17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unless of mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order nevertheless entered by the division. <i>John D Thomas</i> 5/7/12 Signature Date John D Thomas Printed Name jthomas@rlbayless.com E-mail Address 18 SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. Date of Survey Signature and Seal of Professional Surveyor <i>William E. Mahrtke</i> Certificate Number 87008	
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Robert L Bayless, Producer LLC
Drilling Plan
Hoseshoe Gallup
1500' FNL & 555' FEL Sec 19 T30N R15W
San Juan County, NM

Rig Telephone #: 505-320-5234
Rig FAX #: 505-326-6911

GL = 5379 ft

Horseshoe Gallup 19-8H - DRILLING PROGRAM

1 Location :

Surface location: 1500' FNL & 555' FEL Sec 19 T30N R15W
Bottom Hole Location: 1720' FSL & 400' FWL Sec 19 T30N R15W

2 Estimate Formation Tops

	Depth (ft)
Surface - Pictured Cliffs	0
Cliff House	1520
Menefee	1590
Point Lookout	2520
Mancos	3740
Gallup	4057

3 Notable Anticipated Fresh Water, Oil and Gas Formations

The Gallup is a potential oil and gas zone. Water zones will be protected by setting 9 5/8" casing to 300' and circulating cement back to the surface. All zones containing commercial quantities of oil or gas will have cement circulated across them by cementing the 7" Intermediate casings; The 7" casing cement volumes will be pumped to provide cement back to the 9 5/8".

4 Casing Program (New Casing)

Hole Size	Interval	OD Casing	Weight	Grade	Connection	Section
12 1/4"	0-300	9 5/8"	36 #	J-55	LTC	Surface
8 3/4"	300-4335	7"	23 #	J-55	LTC	Intermediate
6 1/8"	3835-8324	4 1/2"	11.6#	N-80	LTC	Production

5 Cement Program

Surface CSG:

Surface casing will be cemented to surface w/ 75% excess.
157 sacks Premium Cement + 2% Calcium Chloride + 0.125 lbm/sk Poly-E-Flake.
Mixed at 15.8 ppg, 1.17 cu ft/sx, 5.0 Gal/sk of water.
Two centralizers will be installed on the float joint and one every second joint thereafter.

7" Intermediate CSG:

Cement will be from 4390' to Surface with 75% excess.
Lead cement: 515 sacks Premium Plus Type III + 3% Econolite + .125 lb/sx Gilsonite
Mixed at 12.3 ppg, 1.93 cu ft/sx, 9.25 Gal/sk of water.
Tail cement: 150 sx 50/50 poz standard + 5 lb/sx Gilsonite



Robert L. Bayless, Producer LLC
Drilling Plan
Hoseshoe Gallup
1500' FNL & 555' FEL Sec 19 T30N R15W
San Juan County, NM

Rig Telephone #:
Rig FAX #:

505-320-5234
505-326-6911

GL =

5379 ft

Mixed at 13.5 ppg, 1.30 cu ft/sx, 5.15 Gal/sk of water.

Two centralizers will be installed on the float joint and one every second joint through all prospective pays.

4 1/2" Production C Will not be cemented.

Zones will be isolated with open hole packers.

For completion 4 1/2" Casing will be run from surface

After completion casing will be cut and removed from surface to 3835'

6 Pressure Control & Wellhead Equipment

The maximum expected bottom hole pressure will be +/- 900 psi.

The drilling contractor has not yet been found, thus the exact BOP model to be used is not yet known. A typical 3,000 psi model will be expected with double ram-type (3,000 psi WP) preventer and a rotating head as seen on Appendix A. This unit will be hydraulically operated and tested by a third party.

The BOPs will be equipped with the rotating head on top. The double rams will be below the rotating head with the 4-1/2" drill pipe rams on top and blind rams on the bottom.

The BOPE will be nipped up on the 9 5/8" surface casing and tested to 1,000 psi by a third party.

BOPs will be operationally checked each 24 hour period. Pressure tests will be conducted before drilling out from under all casing strings which are set and cemented, anytime a seal is broken.

Additional safety equipment will include a safety valve and sub with a full opening valve to fit the drill pipe and collars. The choke lines and a choke manifold will have at least a 3,000 psi WP rating.

7 Types and Characteristics of the Proposed Mud System

The surface hole will be drilled with a fresh water mud.

The intermediate hole will be drilled on KCL gel/polymer mud.

The production hole will be drilled with KCl gel/polymer mud.

DEPTH	TYPE	WEIGHT	VISCOSITY	WATER LOSS
0-300'	Gel	8.4-8.6	60-75	NC
300'-TD'	XANTHAM POLYMER	8.6-8.8	30-40	10-12

Sufficient mud materials will be kept at the well site to maintain mud properties and meet minimum lost circulation and weight increase requirements at all times.

8 Auxillary Well Control and Monitoring Equipment

A. Upper Kelly cock will be kept in the drill string at all times.



Robert L Bayless, Producer LLC
Drilling Plan
Hoseshoe Gallup
1500' FNL & 555' FEL Sec 19 T30N R15W
San Juan County, NM

Rig Telephone #:
Rig FAX #:

505-320-5234
505-326-6911

GL =

5379 ft

- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

9 Logging, Testing and Coring Program

- A. The electric logging program will consist of a Cased Hole Gamma Ray & Induction log from Intermediate shoe (4335') to the surface casing shoe.
- B. Gamma ray only will be run from KOP (3835') to TD.
- C. Mud logger will be present from 300' to TD.
- D. No conventional coring is anticipated.

10 Abnormal conditions, Pressure, Temperatures and Potential Hazards

No abnormal pressures or temperatures or hydrogen sulfide are anticipated.
Lost returns have been experienced in offset wells.
Maximum bottom hole pressure will be +/- 900 psi.

11 Anticipated Starting Date and Duration of Operations

Anticipated start date is JuLY 1, 2012.
Road and location work will not begin until approval has been received from the Surface Owner (BLM).
Once commenced, drilling operations should be finished in approximately 30 days and about 2 weeks to complete the well.

12 Safety

Conduct Tour Safety Meetings with all crews and record topics of these meetings on the IADC and morning reports. Document all personnel in attendance and topics of these Safety Meetings. Keep these documents on file in company representative's office for inspection.

WELL		Horseshoe Gallup 19-8H		Robert L Bayless, Producer LLC	
TYPE	DIRECTIONAL	RG	D&J #2	DATE	4/30/2012
FIELD	Horseshoe	COUNTY	San Juan, New Mexico	ELEVATION	5,379' est
GAS/OIL	OIL	MUD	Water/Gel KCL	CEMENT	TBD from Caliper Log
LOCATION	1500' FNL & 555' FEL of SEC 19 T30N R15W			BHT/BHP	120 F/900 psi
COMMENTS OBJECTIVE FORMATION Gallup					
NOTE					

ROPE SECTIONS	SURVEYS	WORKSHEET	FORMATION TOPS	DEPTH	MUD	OPEN HOLE	CEMENT	REMARKS
		BT	HOLE SIZES	TVD	WEIGHT	LOGS		
Picture Cliffs								
Surface Section				12-1/4" HOLE > 9-5/8" 38# J55 STC @ 300'	300'			
Intermediate Section				8-3/4" HOLE >	SPUD MUD High visc			
				Cliff House > Menefee >	1520' 1590'			
				Point Lookout >	2520'			
				Mancos >	3740'			
				Gallup >	Window 3835-3844' 4073'			
Curve Section				KOP at 3835' AZMUTH = 270 Deg 20 DEG INCLINATION @ LANDING	7" 23# J-55 LT&C 4335' to Surface			
				Tecito Sand >	8324' MD			
				TD >	4335'			

Shunt
8 6-8 8 PPG 3% KCL Xantham Polymer 30-40 Visc.

Lateral
8 6-8 8 PPG 3% KCL Xantham Polymer 30-40 Visc

Casing cut @ 3840' with 5' open hole section

OPEN HOLE LOGS SHLUMBERGER
GR / INDUCTION LOG

OFFICE			
WFE #	REGULATORY	NA	
EV #	ENGINEER	John D Thomas	(505)-320-5234
API #	GEOLOGIST	George Coryell	(303)-362-0908



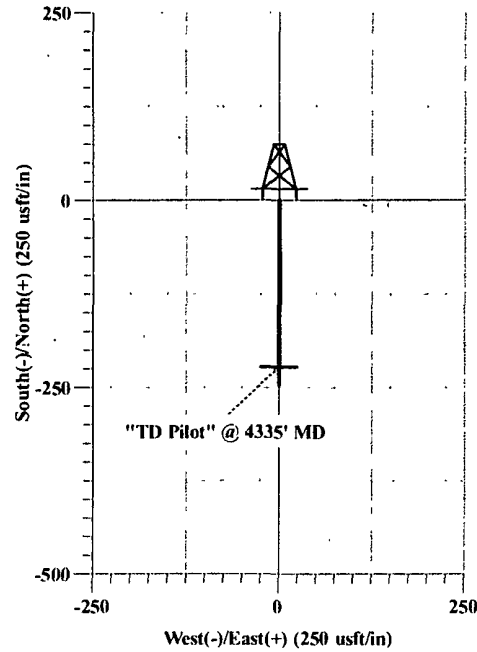
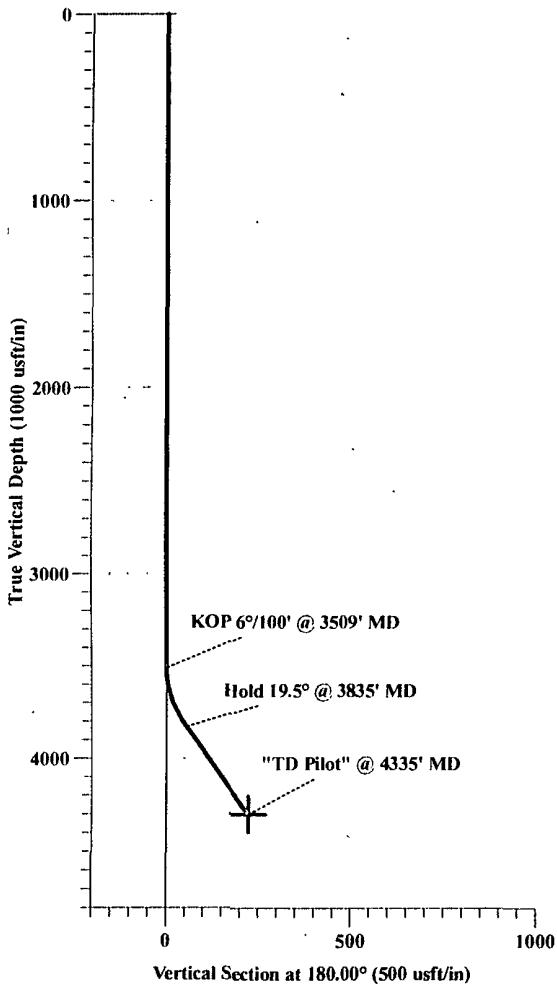
Robert L. Bayless, Producer LLC

Horseshoe Gallup 19-8H
Pilot
Sec 19 T30N R15W
San Juan Co., NM
GE: 5379' / KB: 15'

PATHFINDER
A Schlumberger Company

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
TD Pilot	4300.0	-222.1	0.0	2111883.75	2542196.31	Point



WELL DETAILS: Horseshoe Gallup 19-8H

Ground Level: 5379.0			
Northing	Easting	Latitude	Longitude
2112105.83	2542197.75	36° 48' 9.900 N	108° 27' 4.392 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
3509.5	0.00	0.00	3509.5	0.0	0.0	0.00	0.00	0.0	
3835.0	19.53	180.00	3828.8	-54.9	0.0	6.00	180.00	54.9	
4335.0	19.53	180.00	4300.0	-222.1	0.0	0.00	0.00	222.1	TD Pilot

Plan: Design #3 (Horseshoe Gallup 19-8H/Pilot)

Created By: Breck Enoch

Date: 16-Apr-2012



Pathfinder Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000.1 Single User Db
Company: Robert L. Bayless, Producer LLC.
Project: San Juan Co., NM
Site: Sec 19 T30N R15W
Well: Horseshoe Gallup 19-8H
Wellbore: Pilot
Design: Design #3

Local Co-ordinate Reference: Well Horseshoe Gallup 19-8H
TVD Reference: WELL @ 5394 0usft (Original Well Elev)
MD Reference: WELL @ 5394 0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	San Juan Co., NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	Sec 19 T30N R15W		
Site Position:	Northing:	2,112,105.83 usft	Latitude: 36° 48' 9.900 N
From: Lat/Long	Easting:	2,542,197.74 usft	Longitude: 108° 27' 4.392 W
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16"	Grid Convergence: -0.37°

Well	Horseshoe Gallup 19-8H		
Well Position	+N/-S	0.0 usft	Northing: 2,112,105.83 usft
	+E/-W	0.0 usft	Easting: 2,542,197.74 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level: 5,379.0 usft

Wellbore	Pilot		
Magnetics	Model Name	Sample Date	Declination
	IGRF2010	04/16/12	10.09
			Dip Angle
			63.36
			Field Strength
			50,601

Design	Design #3		
Audit Notes:			
Version:	Phase:	PROTOTYPE	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			180.00

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,509.5	0.00	0.00	3,509.5	0.0	0.0	0.00	0.00	0.00	0.00	
3,835.0	19.53	180.00	3,828.8	-54.9	0.0	6.00	6.00	0.00	180.00	
4,335.0	19.53	180.00	4,300.0	-222.1	0.0	0.00	0.00	0.00	0.00	TD Pilot



Pathfinder Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000 1 Single User Db
Company: Robert L. Bayless, Producer LLC
Project: San Juan Co., NM
Site: Sec 19 T30N R15W
Well: Horseshoe Gallup 19-8H
Wellbore: Pilot
Design: Design #3

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Horseshoe Gallup 19-8H
WELL @ 5394.0usft (Original Well Elev)
WELL @ 5394.0usft (Original Well Elev)
True
Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,509.5	0.00	0.00	3,509.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP 6°/100' @ 3509' MD									
3,550.0	2.43	180.00	3,550.0	-0.9	0.0	0.9	6.00	6.00	0.00
3,600.0	5.43	180.00	3,599.9	-4.3	0.0	4.3	6.00	6.00	0.00
3,650.0	8.43	180.00	3,649.5	-10.3	0.0	10.3	6.00	6.00	0.00
3,700.0	11.43	180.00	3,698.7	-18.9	0.0	18.9	6.00	6.00	0.00
3,750.0	14.43	180.00	3,747.5	-30.1	0.0	30.1	6.00	6.00	0.00
3,800.0	17.43	180.00	3,795.5	-43.8	0.0	43.8	6.00	6.00	0.00
3,835.0	19.53	180.00	3,828.8	-54.9	0.0	54.9	6.00	6.00	0.00
Hold 19.5° @ 3835' MD									
3,900.0	19.53	180.00	3,890.0	-76.7	0.0	76.7	0.00	0.00	0.00
4,000.0	19.53	180.00	3,984.2	-110.1	0.0	110.1	0.00	0.00	0.00
4,100.0	19.53	180.00	4,078.5	-143.5	0.0	143.5	0.00	0.00	0.00
4,200.0	19.53	180.00	4,172.7	-176.9	0.0	176.9	0.00	0.00	0.00
4,300.0	19.53	180.00	4,267.0	-210.4	0.0	210.4	0.00	0.00	0.00
4,335.0	19.53	180.00	4,300.0	-222.1	0.0	222.1	0.00	0.00	0.00
"TD Pilot" @ 4335' MD									



Pathfinder
Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000 1 Single User Db
Company: Robert L. Bayless, Producer LLC.
Project: San Juan Co., NM
Site: Sec 19 T30N R15W
Well: Horseshoe Gallup 19-8H
Wellbore: Pilot
Design: Design #3

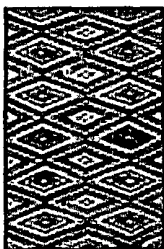
Local Co-ordinate Reference: Well Horseshoe Gallup 19-8H
TVD Reference: WELL @ 5394.0usft (Original Well Elev)
MD Reference: WELL @ 5394.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
TD Pilot	0.00	0 00	4,300.0	-222.1	0.0	2,111,883.75	2,542,196.31	36° 48' 7.704 N	108° 27' 4.392 W
- plan hits target center									
- Point									

Plan Annotations

Measured	Vertical	Local Coordinates		Comment
Depth	Depth	+N/-S	+E/-W	
(usft)	(usft)	(usft)	(usft)	
3,509.5	3,509.5	0.0	0.0	KOP 6°/100' @ 3509' MD
3,835.0	3,828.8	-54.9	0.0	Hold 19 5° @ 3835' MD
4,335.0	4,300.0	-222.1	0.0	"TD Pilot" @ 4335' MD



Robert L. Bayless, Producer LLC.

Horseshoe Gallup 19-8H
ST01
Sec 19 T30N R15W
San Juan Co., NM

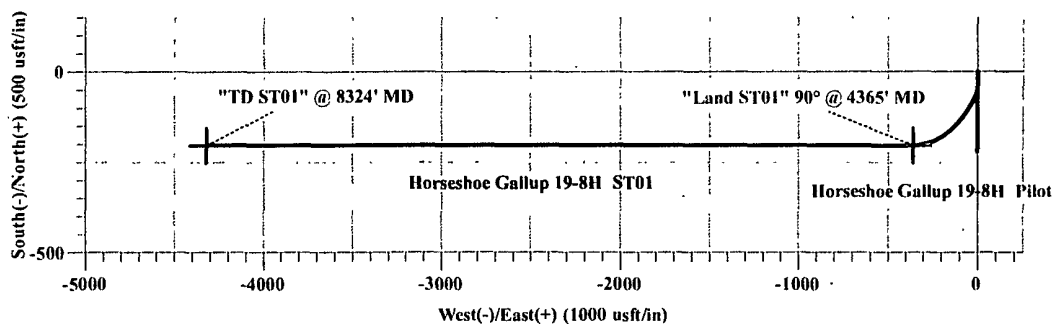
GE: 5379' / KB: 15'

PATHFINDER

A Schlumberger Company

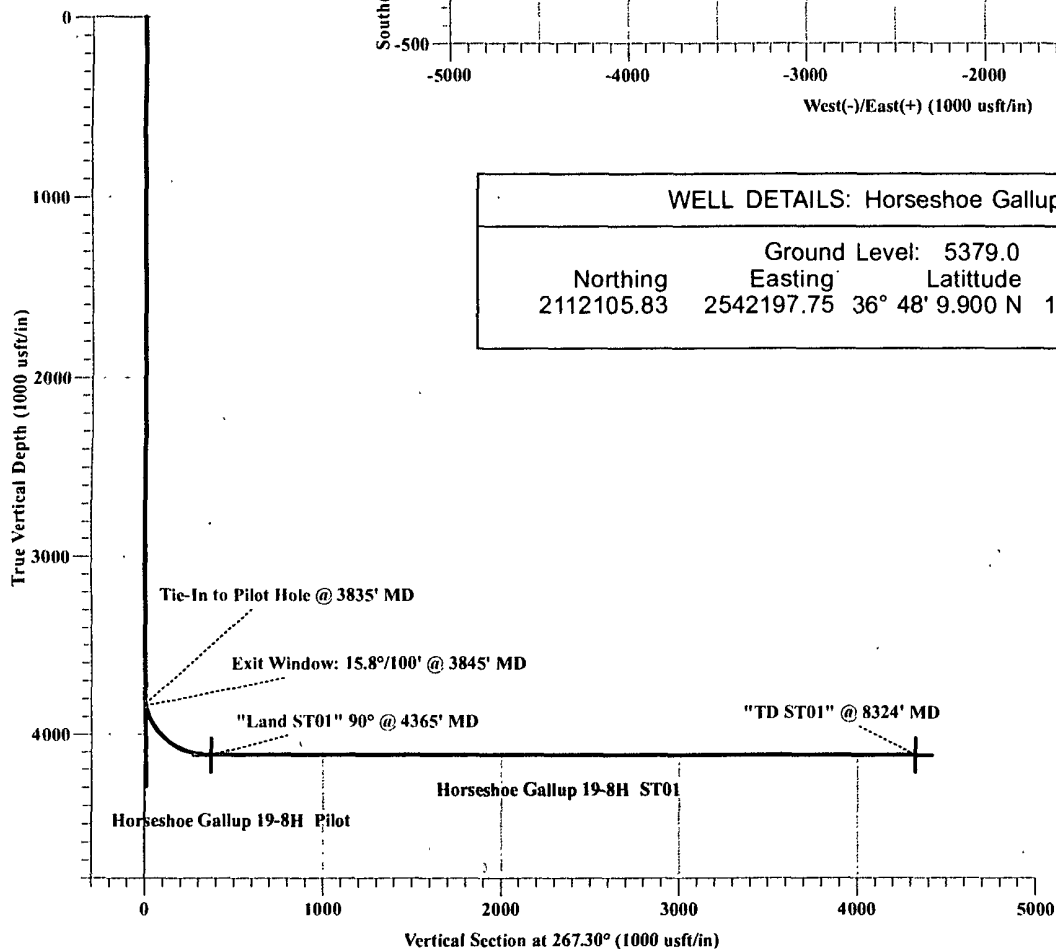
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
BHL 19-8H	4120.0	-203.5	-4318.4	2111930.19	2537878.10	Point
Land 19-8H	4120.0	-203.5	-359.6	2111904.66	2541836.84	Point



WELL DETAILS: Horseshoe Gallup 19-8H

Ground Level: 5379.0			
Northing	Easting	Latitude	Longitude
2112105.83	2542197.75	36° 48' 9.900 N	108° 27' 4.392 W



SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
3835.0	19.53	180.00	3828.7	-54.9	0.0	0.00	0.00	2.6	
3845.0	19.53	218.00	3838.2	-57.9	-1.01	24.96	107.97	3.8	
4365.7	90.00	270.00	4120.0	-203.5	-359.6	15.80	31.08	368.8	
8324.4	90.00	270.00	4120.0	-203.5	-4318.4	0.00	0.00	4323.2	BHL 19-8H

Plan: Design #3 (Horseshoe Gallup 19-8H/ST01)

Created By: Breck Enoch

Date: 16-Apr-2012



Pathfinder Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000.1 Single User Db
Company: Robert L. Bayless, Producer LLC.
Project: San Juan Co., NM
Site: Sec 19 T30N R15W
Well: Horseshoe Gallup 19-8H
Wellbore: ST01
Design: Design #3

Local Co-ordinate Reference: Well Horseshoe Gallup 19-8H
TVD Reference: WELL @ 5394.0usft (Original Well Elev)
MD Reference: WELL @ 5394.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	San Juan Co., NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	Sec 19 T30N R15W			
Site Position:		Northing:	2,112,105.83 usft	Latitude: 36° 48' 9.900 N
From:	Lat/Long	Easting:	2,542,197.74 usft	Longitude: 108° 27' 4.392 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence: -0.37 °

Well	Horseshoe Gallup 19-8H			
Well Position	+N/-S	0.0 usft	Northing:	2,112,105.83 usft
	+E/-W	0.0 usft	Easting:	2,542,197.74 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:		Ground Level: 5,379.0 usft

Wellbore	ST01				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	04/16/12	(°)	(°)	(nT)
			10.09	63.36	50,601

Design	Design #3			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	3,835.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.0	0.0	0.0	267.30

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
3,835.0	19.53	180.00	3,828.7	-54.9	0.0	0.00	0.00	0.00	0.00	
3,845.0	19.53	218.00	3,838.2	-57.9	-1.0	124.96	0.02	380.00	107.97	
4,365.7	90.00	270.00	4,120.0	-203.5	-359.6	15.80	13.53	9.99	31.08	
8,324.4	90.00	270.00	4,120.0	-203.5	-4,318.4	0.00	0.00	0.00	0.00	BHL 19-8H



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MD Reference: WELL @ 5394.0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0 0	0.00	0.00	0 0	0.0	0.0	0.0	0.00	0.00	0.00
100 0	0.00	0.00	100 0	0.0	0.0	0.0	0.00	0.00	0.00
200 0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300 0	0.00	0.00	300 0	0.0	0.0	0.0	0.00	0.00	0.00
400 0	0.00	0.00	400 0	0.0	0.0	0.0	0.00	0.00	0.00
500 0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600 0	0.00	0.00	600 0	0.0	0.0	0.0	0.00	0.00	0.00
700 0	0.00	0.00	700 0	0.0	0.0	0.0	0.00	0.00	0.00
800 0	0.00	0.00	800 0	0.0	0.0	0.0	0.00	0.00	0.00
900 0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000 0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100 0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200 0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300 0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400 0	0.00	0.00	1,400 0	0.0	0.0	0.0	0.00	0.00	0.00
1,500 0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600 0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700 0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800 0	0.00	0.00	1,800 0	0.0	0.0	0.0	0.00	0.00	0.00
1,900 0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000 0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100 0	0.00	0.00	2,100 0	0.0	0.0	0.0	0.00	0.00	0.00
2,200 0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300 0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400 0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500 0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600 0	0.00	0.00	2,600 0	0.0	0.0	0.0	0.00	0.00	0.00
2,700 0	0.00	0.00	2,700 0	0.0	0.0	0.0	0.00	0.00	0.00
2,800 0	0.00	0.00	2,800 0	0.0	0.0	0.0	0.00	0.00	0.00
2,900 0	0.00	0.00	2,900 0	0.0	0.0	0.0	0.00	0.00	0.00
3,000 0	0.00	0.00	3,000 0	0.0	0.0	0.0	0.00	0.00	0.00
3,100 0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200 0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300 0	0.00	0.00	3,300 0	0.0	0.0	0.0	0.00	0.00	0.00
3,400 0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,509.5	0.00	0.00	3,509.5	0.0	0.0	0.0	0.00	0.00	0.00
3,550 0	2.43	180.00	3,550.0	-0.9	0.0	0.0	6.00	6.00	0.00
3,600 0	5.43	180.00	3,599.9	-4.3	0.0	0.2	6.00	6.00	0.00
3,650 0	8.43	180.00	3,649.5	-10.3	0.0	0.5	6.00	6.00	0.00
3,700 0	11.43	180.00	3,698.7	-18.9	0.0	0.9	6.00	6.00	0.00
3,750 0	14.43	180.00	3,747.5	-30.1	0.0	1.4	6.00	6.00	0.00
3,800 0	17.43	180.00	3,795.5	-43.8	0.0	2.1	6.00	6.00	0.00
3,835 0	19.53	180.00	3,828.7	-54.9	0.0	2.6	6.00	6.00	0.00
Tie-In to Pilot Hole @ 3835' MD									
3,836 0	19.18	183.62	3,829.7	-55.3	0.0	2.6	124.96	-35.01	362.06
3,838 0	18.70	191.18	3,831.6	-55.9	-0.1	2.7	124.96	-23.84	378.21
3,840 0	18.54	199.00	3,833.5	-56.5	-0.3	2.9	124.96	-8.07	390.82
3,842 0	18.70	206.82	3,835.4	-57.1	-0.5	3.2	124.96	8.12	390.80
3,844 0	19.18	214.38	3,837.3	-57.7	-0.8	3.6	124.96	23.89	378.15
3,845 0	19.53	218.00	3,838.2	-57.9	-1.0	3.8	124.96	35.05	361.98
Exit Window: 15.8°/100' @ 3845' MD									
3,850 0	20.21	218.50	3,842.9	-59.3	-2.1	4.9	13.95	13.53	9.99
3,875 0	23.59	221.00	3,866.1	-66.4	-8.0	11.2	14.04	13.53	9.99
3,900 0	26.97	223.49	3,888.7	-74.3	-15.2	18.7	14.19	13.53	9.99



Pathfinder Planning Report

PATHFINDER
A Schlumberger Company

Database: EDM 5000 1 Single User Db
Company: Robert L. Bayless, Producer LLC.
Project: San Juan Co., NM
Site: Sec 19 T30N R15W
Well: Horseshoe Gallup 19-8H
Wellbore: ST01
Design: Design #3

Local Co-ordinate Reference: Well Horseshoe Gallup 19-8H
TVD Reference: WELL @ 5394 0usft (Original Well Elev)
MD Reference: WELL @ 5394 0usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,925.0	30.36	225.99	3,910.6	-82.8	-23.7	27.5	14.36	13.53	9.99
3,950.0	33.74	228.49	3,931.8	-91.8	-33.4	37.7	14.53	13.53	9.99
3,975.0	37.13	230.98	3,952.2	-101.2	-44.5	49.2	14.72	13.53	9.99
4,000.0	40.51	233.48	3,971.7	-110.8	-56.9	62.0	14.91	13.53	9.99
4,025.0	43.89	235.98	3,990.2	-120.5	-70.6	76.2	15.10	13.53	9.99
4,050.0	47.28	238.47	4,007.7	-130.1	-85.6	91.6	15.30	13.53	9.99
4,075.0	50.66	240.97	4,024.1	-139.7	-101.9	108.3	15.49	13.53	9.99
4,100.0	54.04	243.47	4,039.3	-148.9	-119.4	126.3	15.67	13.53	9.99
4,125.0	57.43	245.96	4,053.4	-157.7	-138.1	145.3	15.85	13.53	9.99
4,150.0	60.81	248.46	4,066.2	-166.0	-157.8	165.5	16.02	13.53	9.99
4,175.0	64.20	250.96	4,077.8	-173.7	-178.6	186.6	16.18	13.53	9.99
4,200.0	67.58	253.46	4,088.0	-180.7	-200.4	208.6	16.32	13.53	9.99
4,225.0	70.96	255.95	4,096.8	-186.8	-222.9	231.5	16.44	13.53	9.99
4,250.0	74.35	258.45	4,104.3	-192.1	-246.2	254.9	16.55	13.53	9.99
4,275.0	77.73	260.95	4,110.3	-196.4	-270.0	279.0	16.65	13.53	9.99
4,300.0	81.11	263.44	4,114.9	-199.8	-294.4	303.5	16.72	13.53	9.99
4,325.0	84.50	265.94	4,118.0	-202.1	-319.1	328.2	16.77	13.53	9.99
4,350.0	87.88	268.44	4,119.7	-203.3	-344.0	353.2	16.81	13.53	9.99
4,365.7	90.00	270.00	4,120.0	-203.5	-359.6	368.8	16.82	13.53	9.99
"Land ST01" 90° @ 4365' MD									
4,400.0	90.00	270.00	4,120.0	-203.5	-394.0	403.1	0.00	0.00	0.00
4,500.0	90.00	270.00	4,120.0	-203.5	-494.0	503.0	0.00	0.00	0.00
4,600.0	90.00	270.00	4,120.0	-203.5	-594.0	602.9	0.00	0.00	0.00
4,700.0	90.00	270.00	4,120.0	-203.5	-694.0	702.8	0.00	0.00	0.00
4,800.0	90.00	270.00	4,120.0	-203.5	-794.0	802.7	0.00	0.00	0.00
4,900.0	90.00	270.00	4,120.0	-203.5	-894.0	902.6	0.00	0.00	0.00
5,000.0	90.00	270.00	4,120.0	-203.5	-994.0	1,002.5	0.00	0.00	0.00
5,100.0	90.00	270.00	4,120.0	-203.5	-1,094.0	1,102.3	0.00	0.00	0.00
5,200.0	90.00	270.00	4,120.0	-203.5	-1,194.0	1,202.2	0.00	0.00	0.00
5,300.0	90.00	270.00	4,120.0	-203.5	-1,294.0	1,302.1	0.00	0.00	0.00
5,400.0	90.00	270.00	4,120.0	-203.5	-1,394.0	1,402.0	0.00	0.00	0.00
5,500.0	90.00	270.00	4,120.0	-203.5	-1,494.0	1,501.9	0.00	0.00	0.00
5,600.0	90.00	270.00	4,120.0	-203.5	-1,594.0	1,601.8	0.00	0.00	0.00
5,700.0	90.00	270.00	4,120.0	-203.5	-1,694.0	1,701.7	0.00	0.00	0.00
5,800.0	90.00	270.00	4,120.0	-203.5	-1,794.0	1,801.6	0.00	0.00	0.00
5,900.0	90.00	270.00	4,120.0	-203.5	-1,894.0	1,901.5	0.00	0.00	0.00
6,000.0	90.00	270.00	4,120.0	-203.5	-1,994.0	2,001.3	0.00	0.00	0.00
6,100.0	90.00	270.00	4,120.0	-203.5	-2,094.0	2,101.2	0.00	0.00	0.00
6,200.0	90.00	270.00	4,120.0	-203.5	-2,194.0	2,201.1	0.00	0.00	0.00
6,300.0	90.00	270.00	4,120.0	-203.5	-2,294.0	2,301.0	0.00	0.00	0.00
6,400.0	90.00	270.00	4,120.0	-203.5	-2,394.0	2,400.9	0.00	0.00	0.00
6,500.0	90.00	270.00	4,120.0	-203.5	-2,494.0	2,500.8	0.00	0.00	0.00
6,600.0	90.00	270.00	4,120.0	-203.5	-2,594.0	2,600.7	0.00	0.00	0.00
6,700.0	90.00	270.00	4,120.0	-203.5	-2,694.0	2,700.6	0.00	0.00	0.00
6,800.0	90.00	270.00	4,120.0	-203.5	-2,794.0	2,800.5	0.00	0.00	0.00
6,900.0	90.00	270.00	4,120.0	-203.5	-2,894.0	2,900.3	0.00	0.00	0.00
7,000.0	90.00	270.00	4,120.0	-203.5	-2,994.0	3,000.2	0.00	0.00	0.00
7,100.0	90.00	270.00	4,120.0	-203.5	-3,094.0	3,100.1	0.00	0.00	0.00
7,200.0	90.00	270.00	4,120.0	-203.5	-3,194.0	3,200.0	0.00	0.00	0.00
7,300.0	90.00	270.00	4,120.0	-203.5	-3,294.0	3,299.9	0.00	0.00	0.00
7,400.0	90.00	270.00	4,120.0	-203.5	-3,394.0	3,399.8	0.00	0.00	0.00
7,500.0	90.00	270.00	4,120.0	-203.5	-3,494.0	3,499.7	0.00	0.00	0.00
7,600.0	90.00	270.00	4,120.0	-203.5	-3,594.0	3,599.6	0.00	0.00	0.00
7,700.0	90.00	270.00	4,120.0	-203.5	-3,694.0	3,699.5	0.00	0.00	0.00



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Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,800.0	90.00	270.00	4,120.0	-203.5	-3,794.0	3,799.3	0.00	0.00	0.00
7,900.0	90.00	270.00	4,120.0	-203.5	-3,894.0	3,899.2	0.00	0.00	0.00
8,000.0	90.00	270.00	4,120.0	-203.5	-3,994.0	3,999.1	0.00	0.00	0.00
8,100.0	90.00	270.00	4,120.0	-203.5	-4,094.0	4,099.0	0.00	0.00	0.00
8,200.0	90.00	270.00	4,120.0	-203.5	-4,194.0	4,198.9	0.00	0.00	0.00
8,300.0	90.00	270.00	4,120.0	-203.5	-4,294.0	4,298.8	0.00	0.00	0.00
8,324.4	90.00	270.00	4,120.0	-203.5	-4,318.4	4,323.2	0.00	0.00	0.00

"TD ST01" @ 8324' MD

Design Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Land 19-8H - plan hits target center - Point	0.00	0.00	4,120.0	-203.5	-359.6	2,111,904.65	2,541,836.84	36° 48' 7.888 N	108° 27' 8.814 W
BHL 19-8H - plan hits target center - Point	0.00	0.00	4,120.0	-203.5	-4,318.4	2,111,930.18	2,537,878.10	36° 48' 7.884 N	108° 27' 57.492 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,835.0	3,828.7	-54.9	0.0	Tie-In to Pilot Hole @ 3835' MD
3,845.0	3,838.2	-57.9	-1.0	Exit Window: 15.8°/100' @ 3845' MD
4,365.7	4,120.0	-203.5	-359.6	"Land ST01" 90° @ 4365' MD
8,324.4	4,120.0	-203.5	-4,318.4	"TD ST01" @ 8324' MD



BOP DIAGRAM
Horseshoe Gallup 19-8H
San Juan, New Mexico

